

SEQUENCE LISTING

<110> Christopher T. Ritchlin
Sally Haas-Smith
Edward Schwarz

<120> Methods and Compositions Related to
Joint Inflammation Diseases

<130> 21108.0031U2

<140> Unassigned

<151> 2003-03-12

<150> 60/454,573

<151> 2003-03-14

<160> 28

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 1

ctatttcaga gcgcagatgg at

22

<210> 2

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 2

tatgagaact tgggattttg atgc

24

<210> 3

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 3

ttaagccagt gcttcacggg

20

<210> 4

<211> 22

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

 <400> 4
 acgtagacca cgatgatgtc gc 22

 <210> 5
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

 <400> 5
 gctaacctca ccttcgag 18

 <210> 6
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

 <400> 6
 tgattggacc tggttacc 18

 <210> 7
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

 <400> 7
 gctctccaga acatcatccc tgcc 24

 <210> 8
 <211> 25
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

 <400> 8
 cgttgtcata ccaggaaatg agctt 25

 <210> 9
 <211> 2225
 <212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 9

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ctccggggcgc cgcgccatgc gccggggccag ccgagactac ggcaagtacc tgcgcagctc 180
ggaggagatg ggcagcggcc ccggcgctccc acacgagggt ccgctgcacc ccgcgccttc 240
tgcaccggct cggcgccgcg caccgcgcgc ctcccgcctc atgttcctgg cctcctggg 300
gctgggactg ggccaagtgg tctgcagcat cgctctgttc ctgtactttc gagcgagat 360
ggatcctaac agaatatcag aagacagcac tcaactgttt tatagaatcc tgagactcca 420
tgaaaacgca gatttgcagg actcgactct ggagagtga gacacactac ctgactcctg 480
caggaggatg aaacaagcct ttcagggggc cgtgcagaag gaactgcaac acattgtggg 540
gccacagcgc ttctcaggag ctccagctat gatggaaggc tcatggttgg atgtggcca 600
gcgaggcaag cctgaggccc agccatttgc acacctcacc atcaatgctg ccagcatccc 660
atcgggttcc cataaagtca ctctgtcttc ttggtaccac gatcgaggct gggccaagat 720
ctctaactatg acgttaagca acggaaaact aagggttaac caagatggct tctattacct 780
gtacgccaac atttgccttc ggcacatga aacatcgga agcgtaccta cagactatct 840
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tggtggggga tttttcaagc tccgagctgg tgaagaaatt agcattcagg tgtccaaccc 1020
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gatgttagat tcatggtgat tacacaacgg ttttacaatt ttgtaatgat ttcctagaat 1320
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gaggatgcca tgtcattgca aagaaatgat agtgtgaagg gtttaagttct tttgaattgt 1500
tacattgcgc tgggacctgc aaataagttc ttttttctc atgaggagag aaaaatata 1560
gtatttttat ataattgtc aagttatatt tcagggtgtaa tgttttctgt gcaaagtttt 1620
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caaatttaga agctaattga ctttaggagc tgacatagcc aaaaaggata cataataggc 1980
tactgaaatc tgtcaggagt atttatgcaa ttattgaaca ggtgtctttt tttacaagag 2040
ctacaaattg taaattttgt ttctttttt tcccatagaa aatgtactat agtttatcag 2100
ccaaaaaaca atccactttt taatttagtg aaagttattt tattatactg tacaataaaa 2160
gcattgtctc tgaatgttaa ttttttggtg caaaaaataa atttgtacga aaacctgaaa 2220
aaaaa 2225

```

<210> 10

<211> 316

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 10

```

Met Arg Arg Ala Ser Arg Asp Tyr Gly Lys Tyr Leu Arg Ser Ser Glu
1           5           10           15
Glu Met Gly Ser Gly Pro Gly Val Pro His Glu Gly Pro Leu His Pro
20           25           30

```

Ala	Pro	Ser	Ala	Pro	Ala	Pro	Ala	Pro	Pro	Pro	Ala	Ala	Ser	Arg	Ser
		35					40					45			
Met	Phe	Leu	Ala	Leu	Leu	Gly	Leu	Gly	Leu	Gly	Gln	Val	Val	Cys	Ser
	50					55					60				
Ile	Ala	Leu	Phe	Leu	Tyr	Phe	Arg	Ala	Gln	Met	Asp	Pro	Asn	Arg	Ile
65					70					75				80	
Ser	Glu	Asp	Ser	Thr	His	Cys	Phe	Tyr	Arg	Ile	Leu	Arg	Leu	His	Glu
				85					90					95	
Asn	Ala	Asp	Leu	Gln	Asp	Ser	Thr	Leu	Glu	Ser	Glu	Asp	Thr	Leu	Pro
			100						105					110	
Asp	Ser	Cys	Arg	Arg	Met	Lys	Gln	Ala	Phe	Gln	Gly	Ala	Val	Gln	Lys
		115					120					125			
Glu	Leu	Gln	His	Ile	Val	Gly	Pro	Gln	Arg	Phe	Ser	Gly	Ala	Pro	Ala
	130					135						140			
Met	Met	Glu	Gly	Ser	Trp	Leu	Asp	Val	Ala	Gln	Arg	Gly	Lys	Pro	Glu
145					150					155				160	
Ala	Gln	Pro	Phe	Ala	His	Leu	Thr	Ile	Asn	Ala	Ala	Ser	Ile	Pro	Ser
				165					170					175	
Gly	Ser	His	Lys	Val	Thr	Leu	Ser	Ser	Trp	Tyr	His	Asp	Arg	Gly	Trp
			180						185					190	
Ala	Lys	Ile	Ser	Asn	Met	Thr	Leu	Ser	Asn	Gly	Lys	Leu	Arg	Val	Asn
		195					200						205		
Gln	Asp	Gly	Phe	Tyr	Tyr	Leu	Tyr	Ala	Asn	Ile	Cys	Phe	Arg	His	His
	210					215					220				
Glu	Thr	Ser	Gly	Ser	Val	Pro	Thr	Asp	Tyr	Leu	Gln	Leu	Met	Val	Tyr
225					230					235				240	
Val	Val	Lys	Thr	Ser	Ile	Lys	Ile	Pro	Ser	Ser	His	Asn	Leu	Met	Lys
				245					250					255	
Gly	Gly	Ser	Thr	Lys	Asn	Trp	Ser	Gly	Asn	Ser	Glu	Phe	His	Phe	Tyr
			260					265					270		
Ser	Ile	Asn	Val	Gly	Gly	Phe	Phe	Lys	Leu	Arg	Ala	Gly	Glu	Glu	Ile
		275					280					285			
Ser	Ile	Gln	Val	Ser	Asn	Pro	Ser	Leu	Leu	Asp	Pro	Asp	Gln	Asp	Ala
	290					295					300				
Thr	Tyr	Phe	Gly	Ala	Phe	Lys	Val	Gln	Asp	Ile	Asp				
305					310					315					

<210> 11

<211> 2201

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 11

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tggccgcaga caagaagggg agggagcggg agagggagga gagctccgaa gcgagagggc 120
cgagcgccat gcgccgcgcc agcagagact acaccaagta cctgcgtggc tcggaggaga 180
tgggcgggcg ccccgagacc ccgcacgagg gccccctgca cgccccgccg ccgcctgcgc 240
cgcaccagcc ccccgccgcc tcccgtcca tggtcgtggc cctcctgggg ctggggctgg 300
gccaggttgt ctgcagcgtc gccctgttct tctatttcag agcgcagatg gatcctaata 360
gaatatcaga agatggcact cactgcattt atagaatttt gagactccat gaaaatgcag 420
attttcaaga cacaactctg gagagtcaag atacaaaatt aatacctgat tcatgtagga 480
gaattaaaca ggcctttcaa ggagctgtgc aaaaggaatt acaacatatc gttggatcac 540
agcacatcag agcagagaaa gcgatggtgg atggctcatg gttagatctg gccaagagga 600
gcaagcttga agctcagcct tttgctcatc tcaactattaa tgccaccgac atcccatctg 660
gttcccataa agtgagtctg tcctcttggt accatgatcg gggttgggcc aagatctcca 720
acatgacttt tagcaatgga aaactaatag ttaatcagga tggcttttat tacctgtatg 780

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```

ccaacatttg ctttcgacat catgaaactt caggagacct agctacagag tatcttcaac 840
taatggtgta cgtcactaaa accagcatca aaatcccaag ttctcatacc ctgatgaaag 900
gaggaagcac caagtattgg tcagggaatt ctgaattcca tttttattcc ataaacggtg 960
gtggattttt taagttacgg tctggagagg aaatcagcat cgaggctctc aacctctcct 1020
tactggatcc ggatcaggat gcaacatact ttggggcctt taaagtctga gatatagatt 1080
gagccccagt ttttgagtg ttatgtattt cctggatggt tggaaacatt ttttaaaaca 1140
agccaagaaa gatgtatata ggtgtgtgag actactaaga ggcattggcc caacggtaca 1200
cgactcagta tccatgctct tgaccttgta gagaacacgc gtatttacct gccagtggga 1260
gatgttagac tcatggtgtg ttacacaatg gtttttaaat tttgtaatga attcctagaa 1320
ttaaaccaga ttggagcaat tacgggttga ccttatgaga aactgcatgt gggctatggg 1380
aggggttggg ccctgggtcat gtgccccttc gcagctgaag tggagagggt gtcattctagc 1440
gcaattgaag gatcatctga aggggcaaat tcttttgaat tgttacatca tgctggaacc 1500
tgcaaaaaat actttttcta atgaggagag aaaatatatg tatttttata taatatctaa 1560
agtatatatt cagatgtaat gttttctttg caaagtattg taaattatat ttgtgctata 1620
gtatttgatt caaaatattt aaaaatgtct tgctgttgac atatttaatg ttttaaattg 1680
acagacatat ttaactggtg cactttgtaa attccctggg gaaaacttgc agctaaggag 1740
gggaaaaaaa tgttggttcc taatatcaaa tgcagtatat ttcttcgttc tttttaagtt 1800
aatagatttt ttcagacttg tcaagcctgt gcaaaaaaat taaaatggat gccttgaata 1860
ataagcagga tgttgggcac caggtgcctt tcaaatntag aaactaattg actttagaaa 1920
gctgacattg ccaaaaagga tacataatgg gccactgaaa tttgtcaaga gtagtatat 1980
aattgttgaa caggtgtttt tccacaagtg ccgcaaattg tacctttttt tttttttcaa 2040
aatagaaaag ttattagtgg tttatcagca aaaaagtcca attttaattt agtaaatggt 2100
attttatact gtacaataaa aacattgcct ttgaatgtta attttttggg acaaaaaataa 2160
atttatatga aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa a 2201

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<210> 12

<211> 317

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 12

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Met Arg Arg Ala Ser Arg Asp Tyr Thr Lys Tyr Leu Arg Gly Ser Glu
 1           5           10           15
Glu Met Gly Gly Gly Pro Gly Ala Pro His Glu Gly Pro Leu His Ala
      20           25           30
Pro Pro Pro Pro Ala Pro His Gln Pro Pro Ala Ala Ser Arg Ser Met
      35           40           45
Phe Val Ala Leu Leu Gly Leu Gly Leu Gly Gln Val Val Cys Ser Val
      50           55           60
Ala Leu Phe Phe Tyr Phe Arg Ala Gln Met Asp Pro Asn Arg Ile Ser
      65           70           75           80
Glu Asp Gly Thr His Cys Ile Tyr Arg Ile Leu Arg Leu His Glu Asn
      85           90           95
Ala Asp Phe Gln Asp Thr Thr Leu Glu Ser Gln Asp Thr Lys Leu Ile
      100          105          110
Pro Asp Ser Cys Arg Arg Ile Lys Gln Ala Phe Gln Gly Ala Val Gln
      115          120          125
Lys Glu Leu Gln His Ile Val Gly Ser Gln His Ile Arg Ala Glu Lys
      130          135          140
Ala Met Val Asp Gly Ser Trp Leu Asp Leu Ala Lys Arg Ser Lys Leu
      145          150          155          160
Glu Ala Gln Pro Phe Ala His Leu Thr Ile Asn Ala Thr Asp Ile Pro
      165          170          175
Ser Gly Ser His Lys Val Ser Leu Ser Ser Trp Tyr His Asp Arg Gly
      180          185          190
Trp Ala Lys Ile Ser Asn Met Thr Phe Ser Asn Gly Lys Leu Ile Val
      195          200          205

```

Asn	Gln	Asp	Gly	Phe	Tyr	Tyr	Leu	Tyr	Ala	Asn	Ile	Cys	Phe	Arg	His
210						215					220				
His	Glu	Thr	Ser	Gly	Asp	Leu	Ala	Thr	Glu	Tyr	Leu	Gln	Leu	Met	Val
225					230					235					240
Tyr	Val	Thr	Lys	Thr	Ser	Ile	Lys	Ile	Pro	Ser	Ser	His	Thr	Leu	Met
				245					250					255	
Lys	Gly	Gly	Ser	Thr	Lys	Tyr	Trp	Ser	Gly	Asn	Ser	Glu	Phe	His	Phe
			260					265					270		
Tyr	Ser	Ile	Asn	Val	Gly	Gly	Phe	Phe	Lys	Leu	Arg	Ser	Gly	Glu	Glu
	275					280						285			
Ile	Ser	Ile	Glu	Val	Ser	Asn	Pro	Ser	Leu	Leu	Asp	Pro	Asp	Gln	Asp
	290					295					300				
Ala	Thr	Tyr	Phe	Gly	Ala	Phe	Lys	Val	Arg	Asp	Ile	Asp			
305					310					315					

<210> 13

<211> 3136

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 13

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tgcagatcgc tctccatgt accagtgaga agcattatga gcatctggga cggtgctgta 180
acaaatgtga accagaaag tacatgtctt ctaaattgcac tactacctct gacagtgtat 240
gtctgcccctg tggcccggat gaatacttgg atagctggaa tgaagaagat aaatgcttgc 300
tgcataaagt ttgtgataca ggcaaggccc tgggtggccgt ggtcgcccgc aacagcacga 360
ccccccggcg ctgcgcgtgc acggctgggt accactggag ccaggactgc gagtgtgtcc 420
gccgcaacac cgagtgcgcg cggggcctgg gcgcccagca cccgttgtag ctcaacaagg 480
acacagtgtg caaaccttgc cttgcaggct acttctctga tgccttttcc tccacggaca 540
aatgcagacc ctggaccaac tgtaccttcc ttggaaagag agtagaacat catgggacag 600
agaaatccga tgcggtttgc agttcttctc tgccagctag aaaaccacca aatgaacccc 660
atgtttactt gcccggttta ataattctgc ttctcttcgc gtctgtggcc ctggtggctg 720
ccatcatctt tggcgtttgc tataggaaaa aagggaagc actcacagct aatttgtggc 780
actggatcaa tgaggcttgc ggccgcctaa gtggagataa ggagtcctca ggtgacagtt 840
gtgtcagtac acacacggca aactttggtc agcaggagc atgtgaaggt gtcttactgc 900
tgactctgga ggagaagaca tttccagaag atatgtgcta cccagatcaa ggtggtgtct 960
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cattggtcag caagaccgag atagaggaag acagcttcag acagatgccc acagaagatg 1080
aatacatgga caggccctcc cagcccacag accagttact gttcctcact gagcctggaa 1140
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gagccagggc tcgcgagggc agcaccgcag cctctgcccc agccccggcc acccagggat 1980
cgatcggtac agtcaggaa gaccaccgg cattctctgc ccactttgcc ttccaggaaa 2040
tgggcttttc aggaagtga ttgatgagga ctgtcccat gccacggat gctcagcagc 2100

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ccgccgcact ggggcagatg tctccctgc cactcctcaa actcgcagca gtaatttgtg 2160
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ccccatattt gtattccttt tcataacttt tcttgatatc tttcctccct cttttttaat 2280
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cccccccaga gacacggtcc caccatgtta cccagcctgg tctcaaactc cccagctaaa 2580
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tcatttttct aaaagaaaga aaaaaggaaa cccgatttat ttctcctgaa tctttttaag 2880
tttgtgtcgt tccttaagca gaactaagct cagtatgtga ccttaccgc taggtgggta 2940
atztatccat gctggcagag gcactcaggt acttggttaag caaatttcta aaactccaag 3000
ttgctgcagc ttggcattct tcttattcta gaggtctctc tggaaaagat ggagaaaatg 3060
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```

<210> 14

<211> 616

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 14

```

Met Ala Pro Arg Ala Arg Arg Arg Pro Leu Phe Ala Leu Leu Leu
1          5          10          15
Leu Cys Ala Leu Leu Ala Arg Leu Gln Val Ala Leu Gln Ile Ala Pro
20          25          30
Pro Cys Thr Ser Glu Lys His Tyr Glu His Leu Gly Arg Cys Cys Asn
35          40          45
Lys Cys Glu Pro Gly Lys Tyr Met Ser Ser Lys Cys Thr Thr Thr Ser
50          55          60
Asp Ser Val Cys Leu Pro Cys Gly Pro Asp Glu Tyr Leu Asp Ser Trp
65          70          75          80
Asn Glu Glu Asp Lys Cys Leu Leu His Lys Val Cys Asp Thr Gly Lys
85          90          95
Ala Leu Val Ala Val Val Ala Gly Asn Ser Thr Thr Pro Arg Arg Cys
100          105          110
Ala Cys Thr Ala Gly Tyr His Trp Ser Gln Asp Cys Glu Cys Cys Arg
115          120          125
Arg Asn Thr Glu Cys Ala Pro Gly Leu Gly Ala Gln His Pro Leu Gln
130          135          140
Leu Asn Lys Asp Thr Val Cys Lys Pro Cys Leu Ala Gly Tyr Phe Ser
145          150          155          160
Asp Ala Phe Ser Ser Thr Asp Lys Cys Arg Pro Trp Thr Asn Cys Thr
165          170          175
Phe Leu Gly Lys Arg Val Glu His His Gly Thr Glu Lys Ser Asp Ala
180          185          190
Val Cys Ser Ser Ser Leu Pro Ala Arg Lys Pro Pro Asn Glu Pro His
195          200          205
Val Tyr Leu Pro Gly Leu Ile Leu Leu Leu Phe Ala Ser Val Ala
210          215          220
Leu Val Ala Ala Ile Ile Phe Gly Val Cys Tyr Arg Lys Lys Gly Lys
225          230          235          240
Ala Leu Thr Ala Asn Leu Trp His Trp Ile Asn Glu Ala Cys Gly Arg
245          250          255

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Leu Ser Gly Asp Lys Glu Ser Ser Gly Asp Ser Cys Val Ser Thr His
      260      265      270
Thr Ala Asn Phe Gly Gln Gln Gly Ala Cys Glu Gly Val Leu Leu Leu
      275      280      285
Thr Leu Glu Glu Lys Thr Phe Pro Glu Asp Met Cys Tyr Pro Asp Gln
      290      295      300
Gly Gly Val Cys Gln Gly Thr Cys Val Gly Gly Gly Pro Tyr Ala Gln
305      310      315      320
Gly Glu Asp Ala Arg Met Leu Ser Leu Val Ser Lys Thr Glu Ile Glu
      325      330      335
Glu Asp Ser Phe Arg Gln Met Pro Thr Glu Asp Glu Tyr Met Asp Arg
      340      345      350
Pro Ser Gln Pro Thr Asp Gln Leu Leu Phe Leu Thr Glu Pro Gly Ser
      355      360      365
Lys Ser Thr Pro Pro Phe Ser Glu Pro Leu Glu Val Gly Glu Asn Asp
      370      375      380
Ser Leu Ser Gln Cys Phe Thr Gly Thr Gln Ser Thr Val Gly Ser Glu
385      390      395      400
Ser Cys Asn Cys Thr Glu Pro Leu Cys Arg Thr Asp Trp Thr Pro Met
      405      410      415
Ser Ser Glu Asn Tyr Leu Gln Lys Glu Val Asp Ser Gly His Cys Pro
      420      425      430
His Trp Ala Ala Ser Pro Ser Pro Asn Trp Ala Asp Val Cys Thr Gly
      435      440      445
Cys Arg Asn Pro Pro Gly Glu Asp Cys Glu Pro Leu Val Gly Ser Pro
      450      455      460
Lys Arg Gly Pro Leu Pro Gln Cys Ala Tyr Gly Met Gly Leu Pro Pro
465      470      475      480
Glu Glu Glu Ala Ser Arg Thr Glu Ala Arg Asp Gln Pro Glu Asp Gly
      485      490      495
Ala Asp Gly Arg Leu Pro Ser Ser Ala Arg Ala Gly Ala Gly Ser Gly
      500      505      510
Ser Ser Pro Gly Gly Gln Ser Pro Ala Ser Gly Asn Val Thr Gly Asn
      515      520      525
Ser Asn Ser Thr Phe Ile Ser Ser Gly Gln Val Met Asn Phe Lys Gly
      530      535      540
Asp Ile Ile Val Val Tyr Val Ser Gln Thr Ser Gln Glu Gly Ala Ala
545      550      555      560
Ala Ala Ala Glu Pro Met Gly Arg Pro Val Gln Glu Glu Thr Leu Ala
      565      570      575
Arg Arg Asp Ser Phe Ala Gly Asn Gly Pro Arg Phe Pro Asp Pro Cys
      580      585      590
Gly Gly Pro Glu Gly Leu Arg Glu Pro Glu Lys Ala Ser Arg Pro Val
      595      600      605
Gln Glu Gln Gly Gly Ala Lys Ala
      610      615

```

<210> 15

<211> 2116

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 15

```

cgcccagccc gcccgaccg cgccatggcc ccgcgcgccc ggccggcgccg ccagctgccc 60
gcgccgctgc tggcgctctg cgtgctgctc gttccactgc aggtgactct ccaggtcact 120
cctccatgca cccaggagag gcattatgag catctcggac ggtgttcgag cagatgcgaa 180

```



```

ccaggaaagt acctgtcctc taagtgcact cctacctccg acagtgtgtg tctgccctgt 240
ggccccgatg agtacttgga cacctggaat gaagaagata aatgcttgct gcataaagtc 300
tgtgatgcag gcaaggccct ggtggcggtg gatcctggca accacacggc cccgcgtcgc 360
tgtgcttgca cggctggcta ccactggaac tcagactgcg agtgctgccg caggaacacg 420
gagtgtgcac ctggcttcgg agctcagcat cccttgacgc tcaacaagga tacgggtgtgc 480
acaccctgcc tcctgggctt cttctcagat gtcttttcgt ccacagacaa atgcaaacct 540
tggaccaact gcaccctcct tggaaagcta gaagcacacc aggggacaac ggaatcagat 600
gtgggtctgca gctcttccat gacactgagg agaccaccca aggaggccca ggcttacctg 660
cccagttctca tcgttctgct cctcttcata tctgtggtag tagtggctgc catcatcttc 720
ggcgtttact acaggaaggg agggaaagcg ctgacagcta atttgtggaa ttgggtcaat 780
gatgcttgca gtagtctaag tggaaataag gagtccctcag gggaccgttg tgctgggtcc 840
cactcggcaa cctccagtc gcaagaagtg tgtgaaggta tcttactaat gactcgggag 900
gagaagatgg ttccagaaga cgggtgctga gtctgtgggc ctgtgtgtgc ggcagggtggg 960
ccctggggcag aagtcagaga ttctaggacg ttcacactgg tcagcgaggt tgagacgcaa 1020
ggagacctct cgaggaagat tcccacagag gatgagtaca cggaccggcc ctgcgagcct 1080
tcgactgggt cactgtcctt aatccagcag ggaagcaaat ctataccccc attccaggag 1140
cccctggaag tgggggagaa cgacagttta agccagtgtt tcaccgggac tgaaagcacg 1200
gtggattctg agggctgtga cttcactgag cctccgagca gaactgactc tatgcccggtg 1260
tcccctgaaa agcacctgac aaaagaaata gaaggtgaca gttgcctccc ctgggtgggtc 1320
agctccaact caacagatgg ctacacaggc agtgggaaca ctcctgggga ggaccatgaa 1380
ccctttccag ggtccctgaa atgtggacca ttgccccagt gtgcctacag catgggcttt 1440
cccagtgaag cagcagccag catggcagag gcgggagtag ggccccagga cagggtgat 1500
gagaggggag cctcagggtc cgggagctcc cccagtgacc agccacctgc ctctgggaac 1560
gtgactggaa acagtaactc cacgttcata tctagcgggc aggtgatgaa cttcaagggt 1620
gacatcatcg tgggtgatgt cagccagacc tcgcaggagg gcccggttc cgcagagccc 1680
gagtcggagc ccgtgggccc ccctgtgcag gaggagacgc tggcacacag agactccttt 1740
gcgggcaccg cgccgcgctt ccccacgctc tgtgccaccg gggctgggct gcaggagcag 1800
ggggcacccc ggcagaagga cgggacatcg cggccggtgc aggagcaggg tggggcgag 1860
acttcactcc ataccaggg gtccggacaa tgtgcagaat gacctcacct tctctgtctg 1920
ccctgggtgc agggcaccag tgcctttcca aaaacatggt gtagctagcc actgtgcacc 1980
tccctactgg tgcaggctgc tggcatggtg atggagccca cctctcactt cctccagtgc 2040
ccctctcctc tgctctctac cacctggcat cattcagttt ggcctttttt tgcaacggtg 2100
gtgtcctgca ttattg 2116

```

<210> 16

<211> 625

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 16

```

Met Ala Pro Arg Ala Arg Arg Arg Arg Gln Leu Pro Ala Pro Leu Leu
 1           5           10           15
Ala Leu Cys Val Leu Leu Val Pro Leu Gln Val Thr Leu Gln Val Thr
          20           25           30
Pro Pro Cys Thr Gln Glu Arg His Tyr Glu His Leu Gly Arg Cys Cys
          35           40           45
Ser Arg Cys Glu Pro Gly Lys Tyr Leu Ser Ser Lys Cys Thr Pro Thr
          50           55           60
Ser Asp Ser Val Cys Leu Pro Cys Gly Pro Asp Glu Tyr Leu Asp Thr
          65           70           75           80
Trp Asn Glu Glu Asp Lys Cys Leu Leu His Lys Val Cys Asp Ala Gly
          85           90           95
Lys Ala Leu Val Ala Val Asp Pro Gly Asn His Thr Ala Pro Arg Arg
          100          105          110
Cys Ala Cys Thr Ala Gly Tyr His Trp Asn Ser Asp Cys Glu Cys Cys
          115          120          125

```

Arg 130	Arg	Asn	Thr	Glu	Cys	Ala 135	Pro	Gly	Phe	Gly	Ala 140	Gln	His	Pro	Leu	
Gln 145	Leu	Asn	Lys	Asp	Thr 150	Val	Cys	Thr	Pro	Cys 155	Leu	Leu	Gly	Phe	Phe 160	
Ser	Asp	Val	Phe	Ser 165	Ser	Thr	Asp	Lys	Cys 170	Lys	Pro	Trp	Thr	Asn 175	Cys	
Thr	Leu	Leu	Gly 180	Lys	Leu	Glu	Ala	His 185	Gln	Gly	Thr	Thr	Glu 190	Ser	Asp	
Val	Val	Cys 195	Ser	Ser	Ser	Met	Thr 200	Leu	Arg	Arg	Pro	Pro 205	Lys	Glu	Ala	
Gln 210	Ala	Tyr	Leu	Pro	Ser	Leu 215	Ile	Val	Leu	Leu	Leu 220	Phe	Ile	Ser	Val	
Val 225	Val	Val	Ala	Ala	Ile 230	Ile	Phe	Gly	Val	Tyr	Tyr 235	Arg	Lys	Gly	Gly 240	
Lys	Ala	Leu	Thr	Ala 245	Asn	Leu	Trp	Asn	Trp	Val	Asn	Asp	Ala	Cys 255	Ser	
Ser	Leu	Ser	Gly 260	Asn	Lys	Glu	Ser	Ser 265	Gly	Asp	Arg	Cys	Ala	Gly	Ser	
His	Ser 275	Ala	Thr	Ser	Ser	Gln	Gln 280	Glu	Val	Cys	Glu	Gly 285	Ile	Leu	Leu	
Met 290	Thr	Arg	Glu	Glu	Lys	Met 295	Val	Pro	Glu	Asp	Gly 300	Ala	Gly	Val	Cys	
Gly 305	Pro	Val	Cys	Ala	Ala 310	Gly	Gly	Pro	Trp	Ala	Glu 315	Val	Arg	Asp	Ser	
Arg	Thr	Phe	Thr	Leu 325	Val	Ser	Glu	Val	Glu	Thr	Gln	Gly	Asp	Leu 335	Ser	
Arg	Lys	Ile	Pro 340	Thr	Glu	Asp	Glu	Tyr 345	Thr	Asp	Arg	Pro	Ser 350	Gln	Pro	
Ser	Thr	Gly 355	Ser	Leu	Leu	Leu	Ile 360	Gln	Gln	Gly	Ser	Lys 365	Ser	Ile	Pro	
Pro 370	Phe	Gln	Glu	Pro	Leu	Glu 375	Val	Gly	Glu	Asn	Asp 380	Ser	Leu	Ser	Gln	
Cys 385	Phe	Thr	Gly	Thr	Glu 390	Ser	Thr	Val	Asp	Ser	Glu 395	Gly	Cys	Asp	Phe 400	
Thr	Glu	Pro	Pro	Ser 405	Arg	Thr	Asp	Ser	Met	Pro	Val	Ser	Pro	Glu 415	Lys	
His	Leu	Thr	Lys 420	Glu	Ile	Glu	Gly	Asp 425	Ser	Cys	Leu	Pro	Trp 430	Val	Val	
Ser	Ser	Asn 435	Ser	Thr	Asp	Gly	Tyr 440	Thr	Gly	Ser	Gly 445	Asn	Thr	Pro	Gly	
Glu 450	Asp	His	Glu	Pro	Phe	Pro 455	Gly	Ser	Leu	Lys	Cys 460	Gly	Pro	Leu	Pro	
Gln 465	Cys	Ala	Tyr	Ser	Met 470	Gly	Phe	Pro	Ser	Glu 475	Ala	Ala	Ala	Ser	Met 480	
Ala	Glu	Ala	Gly	Val 485	Arg	Pro	Gln	Asp	Arg	Ala 490	Asp	Glu	Arg	Gly 495	Ala	
Ser	Gly	Ser	Gly 500	Ser	Ser	Pro	Ser	Asp 505	Gln	Pro	Pro	Ala	Ser 510	Gly	Asn	
Val	Thr	Gly 515	Asn	Ser	Asn	Ser	Thr 520	Phe	Ile	Ser	Ser	Gly 525	Gln	Val	Met	
Asn 530	Phe	Lys	Gly	Asp	Ile	Ile 535	Val	Val	Tyr	Val	Ser 540	Gln	Thr	Ser	Gln	
Glu 545	Gly	Pro	Gly	Ser	Ala 550	Glu	Pro	Glu	Ser	Glu 555	Pro	Val	Gly	Arg	Pro 560	
Val	Gln	Glu	Glu	Thr 565	Leu	Ala	His	Arg	Asp 570	Ser	Phe	Ala	Gly	Thr 575	Ala	
Pro	Arg	Phe	Pro 580	Asp	Val	Cys	Ala	Thr 585	Gly	Ala	Gly	Leu	Gln 590	Glu	Gln	
Gly	Ala	Pro 595	Arg	Gln	Lys	Asp	Gly 600	Thr	Ser	Arg	Pro	Val	Gln	Glu	Gln	

Gly Gly Ala Gln Thr Ser Leu His Thr Gln Gly Ser Gly Gln Cys Ala
 610 615 620
 Glu
 625

<210> 17
 <211> 1669
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

<400> 17
 ctccctcagc aaggacagca gaggaccagc taagagggag agaagcaact acagaccccc 60
 cctgaaaaca accctcagac gccacatccc ctgacaagct gccaggcagg ttctcttcct 120
 ctcacatact gaccacaggc tccacctctt ctcccctgga aaggacacca tgagcactga 180
 aagcatgatc cgggacgtgg agctggccga ggaggcgctc cccaagaaga cagggggggc 240
 ccagggctcc aggcggtgct tgttcctcag cctctttctc ttcctgatcg tggcaggcgc 300
 caccacgctc ttctgcctgc tgcacttttg agtgatcggc cccagagggg aagagttccc 360
 cagggacctc tctctaata gccctctggc ccaggcagtc agatcatctt ctccaacccc 420
 gagtgacaag cctgtagccc atgttgtagc aaacctcaa gctgaggggc agctccagtg 480
 gctgaaccgc cgggccaatg cctcctggc caatggcgctg gagctgagag ataaccagct 540
 ggtggtgcca tcagagggcc tgtacctcat ctactcccag gtcctcttca agggccaagg 600
 ctgcccctcc acccatgtgc tcctcaccca caccatcagc cgcacgcgcg tctcctacca 660
 gaccaaggtc aacctcctct ctgccatcaa gagcccctgc cagagggaga cccagagggg 720
 ggctgaggcc aagccctggt atgagcccat ctatctggga ggggtcttcc agctggagaa 780
 gggtgaccga ctcagcgctg agatcaatcg gcccgactat ctcgactttg ccgagtctgg 840
 gcagggtctac tttgggatca ttgccctgtg aggaggacga acatccaacc ttcccaaacg 900
 cctcccctgc cccaatccct ttattacccc ctcttcaga caccctcaac ctcttctggc 960
 tcaaaaagag aattgggggc ttagggtcgg aacccaagct tagaacttta agcaacaaga 1020
 ccaccacttc gaaacctggg attcaggaat gtgtggcctg cacagtgaag tgctggcaac 1080
 cactaagaat tcaaaactgg gcctccagaa ctactggggg cctacagctt tgatccctga 1140
 catctggaat ctggagacca gggagccttt ggttctggcc agaatgctgc aggacttgag 1200
 aagacctcac ctagaaattg acacaagtgg accttaggcc ttcctctctc cagatgtttc 1260
 cagacttcct tgagacacgg agcccagccc tcccattgga gccagctccc tctatttatg 1320
 tttgcacttg tgattattta ttatttattt attatttatt tattttacaga tgaatgtatt 1380
 tatttgggag accggggtat cctgggggac ccaatgtagg agctgccttg gctcagacat 1440
 gttttccgtg aaaacggagc tgaacaatag gctgttccca tgtagcccc tggcctctgt 1500
 gccttctttt gattatgttt tttaaaatat ttatctgatt aagttgtcta aacaatgctg 1560
 atttggtgac caactgtcac tcattgctga gcctctgctc cccaggggag ttgtgtctgt 1620
 aatcgcccta ctattcagtg gcgagaaata aagtttgctt agaaaagaa 1669

<210> 18
 <211> 233
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

<400> 18
 Met Ser Thr Glu Ser Met Ile Arg Asp Val Glu Leu Ala Glu Glu Ala
 1 5 10 15
 Leu Pro Lys Lys Thr Gly Gly Pro Gln Gly Ser Arg Arg Cys Leu Phe
 20 25 30

Leu Ser Leu Phe Ser Phe Leu Ile Val Ala Gly Ala Thr Thr Leu Phe
 35 40 45
 Cys Leu Leu His Phe Gly Val Ile Gly Pro Gln Arg Glu Glu Phe Pro
 50 55 60
 Arg Asp Leu Ser Leu Ile Ser Pro Leu Ala Gln Ala Val Arg Ser Ser
 65 70 75 80
 Ser Arg Thr Pro Ser Asp Lys Pro Val Ala His Val Val Ala Asn Pro
 85 90 95
 Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala Leu
 100 105 110
 Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu Val Val Pro Ser
 115 120 125
 Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe Lys Gly Gln Gly
 130 135 140
 Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile Ser Arg Ile Ala
 145 150 155 160
 Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala Ile Lys Ser Pro
 165 170 175
 Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu
 180 185 190
 Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu
 195 200 205
 Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly
 210 215 220
 Gln Val Tyr Phe Gly Ile Ile Ala Leu
 225 230

<210> 19

<211> 1619

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
 Synthetic Construct

<400> 19

cctcagcgag gacagcaagg gactagccag gagggagaac agaaactcca gaacatcttg 60
 gaaatagctc ccagaaaagc aagcagccaa ccaggcaggt tctgtccctt tcactcactg 120
 gcccaaggcg ccacatctcc ctccagaaaa gacaccatga gcacagaaag catgatccgc 180
 gacgtggaac tggcagaaga ggcactcccc caaaagatgg ggggcttcca gaactccagg 240
 cgggtgcctat gtctcagcct cttctcattc ctgcttggtg caggggccac cacgctcttc 300
 tgtctactga acttcggggg gatcgggtccc caaagggatg agaagttccc aaatggcctc 360
 cctctcatca gttctatggc ccagaccctc acactcagat catcttctca aaattcgagt 420
 gacaagcctg tagcccacgt cgtagcaaac caccaagtgg aggagcagct ggagtggctg 480
 agccagcgcg ccaacgcctt cctggccaac ggcattggatc tcaaagacaa ccaactagt 540
 gtgccagccg atgggttgta cctgtgttac tcccagggtc tcttcaaggg acaaggctgc 600
 cccgactacg tgctcctcac ccacaccgtc agccgatttg ctatctcata ccaggagaaa 660
 gtcaacctcc tctctgccgt caagagcccc tgccccaagg acaccctga gggggctgag 720
 ctcaaaccct ggtatgagcc catatacctg ggaggagtct tccagctgga gaagggggac 780
 caactcagcg ctgaggtcaa tctgccaag tacttagact ttgcggagtc cgggcaggtc 840
 tactttggag tcattgctct gtgaagggaa tgggtgttca tccattctct acccagcccc 900
 cactctgacc ctttactct gacccttta ttgtctactc ctgagagccc ccagtctgtg 960
 tccttctaac ttagaaaggg gattatggct cagagtccaa ctctgtgtc agagctttca 1020
 acaactactc agaaacacaa gatgctggga cagtgcctg gactgtgggc ctctcatgca 1080
 ccaccatcaa ggactcaaat gggctttccg aattcactgg agcctcgaat gtccattcct 1140
 gagttctgca aagggagagt ggtcagggtt cctctgtctc agaatgaggc tggataagat 1200
 ctcaggcctt cctaccttca gacctttcca gactcttccc tgaggtgcaa tgcacagcct 1260
 tcctcacaga gccagcccc ctctatttat atttgactt attatttatt atttatttat 1320
 tattttattta tttgcttatg aatgtattta tttggaaggc cgggggtgtcc tggaggaccc 1380

```

agtgtgggaa gctgtcttca gacagacatg ttttctgtga aaacggagct gagctgtccc 1440
cacctggcct ctctaccttg ttgcctcctc ttttgcttat gtttaaaaca aaatatttat 1500
ctaaccgaat tgtcttaata acgctgattt ggtgaccagg ctgtcgctac atcactgaac 1560
ctctgtctccc cacgggagcc gtgactgtaa ttgccctaca gtcaattgag agaaataaa 1619

```

<210> 20

<211> 235

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 20

```

Met Ser Thr Glu Ser Met Ile Arg Asp Val Glu Leu Ala Glu Glu Ala
 1          5          10          15
Leu Pro Gln Lys Met Gly Gly Phe Gln Asn Ser Arg Arg Cys Leu Cys
          20          25          30
Leu Ser Leu Phe Ser Phe Leu Leu Val Ala Gly Ala Thr Thr Leu Phe
          35          40          45
Cys Leu Leu Asn Phe Gly Val Ile Gly Pro Gln Arg Asp Glu Lys Phe
          50          55          60
Pro Asn Gly Leu Pro Leu Ile Ser Ser Met Ala Gln Thr Leu Thr Leu
          65          70          75          80
Arg Ser Ser Ser Gln Asn Ser Ser Asp Lys Pro Val Ala His Val Val
          85          90          95
Ala Asn His Gln Val Glu Glu Gln Leu Glu Trp Leu Ser Gln Arg Ala
          100          105          110
Asn Ala Leu Leu Ala Asn Gly Met Asp Leu Lys Asp Asn Gln Leu Val
          115          120          125
Val Pro Ala Asp Gly Leu Tyr Leu Val Tyr Ser Gln Val Leu Phe Lys
          130          135          140
Gly Gln Gly Cys Pro Asp Tyr Val Leu Leu Thr His Thr Val Ser Arg
          145          150          155          160
Phe Ala Ile Ser Tyr Gln Glu Lys Val Asn Leu Leu Ser Ala Val Lys
          165          170          175
Ser Pro Cys Pro Lys Asp Thr Pro Glu Gly Ala Glu Leu Lys Pro Trp
          180          185          190
Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys Gly Asp
          195          200          205
Gln Leu Ser Ala Glu Val Asn Leu Pro Lys Tyr Leu Asp Phe Ala Glu
          210          215          220
Ser Gly Gln Val Tyr Phe Gly Val Ile Ala Leu
          225          230          235

```

<210> 21

<211> 2254

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 21

```

ccaacaatct gtgtggttgt ttttctgtgt tcctccaatg gtagggcctc tgttcaccag 60
tgccgtctct tcttttagct gtaagaaaag cctggagtgc acgaagttgt gcctacccca 120
gattgagaat gttaagggca ctgaggactc aggtgaggag aggtgacctg gtgcccacgc 180
tcacctgccc tctccctctt cttgccccca cccgtccatc catcccaccc atccatctat 240

```

```

ccctgcgggcc cccctctgccc cgctcctctg accaacacct gctttgtctg caggcaccac 300
agtgtctgttg cccctgggtca ttttcttttg tctttgcctt ttatccctcc tcttcattgg 360
tttaagtgtat cgctaccaac ggtggaagtc caagctctac tccattgggtg agtgggggct 420
ttgggagggga gaggagagctg gtgggggtga gggaggacat ggggtgggtgc gatggacatg 480
tgtggagggga ggtgaggagt gtccctcag ttcataccgc tggggactct gggcagaagg 540
tggccctgga tggctgggga gatgtcgagc tgcatacagta gctctctcgt ccctggggcc 600
acataggccc tgaggcatgt caccacaagt cccactgcc agctgagtcc agggtgccag 660
ggctgagaga ggaagtga aa tttatgatgc tttctttctt tttcctcagt ttgtgggaaa 720
tcgacacctg aaaaagaggt gagatgaaat gagagagtta ctcccaaagt tccctgacca 780
ttccttataa ttgcctaagt ctcagatccc ctggaatcat ccttcacttt ccggggggctc 840
gcctcattcc ctctaagtcc caacccccac gtagaataaa gagggccggg gctggttttc 900
gctgcccgcac taatctgcgc caccttctct tcttcagggg gagcttgaag gaactactac 960
taagcccctg gccccaaacc caagcttcag tccactcca ggcttcaccc ccacctggg 1020
cttcagtccc gtgcccagtt ccaccttcac ctccagctcc acctataccc ccggtgactg 1080
tcccaacttt gcggctcccc gcagagaggt ggcaccaccc tatcaggggg ctgaccccat 1140
ccttgcgaca gccctcgct cggaccccat ccccaacccc cttcagaagt gggaggacag 1200
cgccccacaag ccacagagcc tagacagtgc gtttctcccg cggctggaga cgaggaggct 1260
gggggagggc cgggggagcg cgggagcggt cagaggggac cacgagaggc ggagggcgcg 1320
ggatgcgggg cggggcctgg ggttgccgcc cgaggctcac cggcccgcgt ccccgagct 1380
gatgaccccc cgacgctgta cgccgtgggt gagaacgtgc ccccgttgct ctggaaggaa 1440
ttcgtgcggc gcctagggct gagcgaccac gagatcgatc ggctggagct gcagaacggg 1500
cgctgcctgc gcgaggcgca atacagcatg ctggcgacct ggaggcgggc cacgccgcgg 1560
cgcgaggcca cgctggagct gctgggacgc gtgctccgcg acatggacct gctgggctgc 1620
ctggaggaca tcgaggaggc gctttgcggc cccgccgcc tcccgccgc gccagctctt 1680
ctcagatgag gctgcgcccc tgcgggcagc tctaaggacc gtctgagag atcgcttcc 1740
aacccactt ttttctggaa aggaggggtc ctgcaggggc aagcaggagc tagcagccgc 1800
ctacttggtg ctaaccctc gatgtacata gcttttctca gctgcctgcg cgccgccgac 1860
agtcagcgct gtgcgcgcgg agagaggtgc gccgtgggct caagagcctg agtgggtggt 1920
ttgcgaggat gagggacgct atgcctcatg cccgttttg gtgtcctcac cagcaaggct 1980
gctcgggggc ccctggttcg tccctgagcc tttttcacag tgcataagca gtttttttg 2040
tttttgtttt gttttgtttt gtttttaaat caatcatggt aactaatag aaacttgga 2100
ctcctgtgcc ctctgcctgg acaagcacat agcaagctga actgtcctaa ggcaggggcg 2160
agcacggaac aatggggcct tcagctggag ctgtggactt ttgtacatac actaaaattc 2220
tgaagttaaa gctctgctct tggagacagt ggct 2254

```

<210> 22

<211> 455

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 22

```

Met Gly Leu Ser Thr Val Pro Asp Leu Leu Leu Pro Leu Val Leu Leu
1          5          10          15
Glu Leu Leu Val Gly Ile Tyr Pro Ser Gly Val Ile Gly Leu Val Pro
20          25          30
His Leu Gly Asp Arg Glu Lys Arg Asp Ser Val Cys Pro Gln Gly Lys
35          40          45
Tyr Ile His Pro Gln Asn Asn Ser Ile Cys Cys Thr Lys Cys His Lys
50          55          60
Gly Thr Tyr Leu Tyr Asn Asp Cys Pro Gly Pro Gly Gln Asp Thr Asp
65          70          75          80
Cys Arg Glu Cys Glu Ser Gly Ser Phe Thr Ala Ser Glu Asn His Leu
85          90          95
Arg His Cys Leu Ser Cys Ser Lys Cys Arg Lys Glu Met Gly Gln Val
100         105         110
Glu Ile Ser Ser Cys Thr Val Asp Arg Asp Thr Val Cys Gly Cys Arg
115         120         125

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Lys	Asn	Gln	Tyr	Arg	His	Tyr	Trp	Ser	Glu	Asn	Leu	Phe	Gln	Cys	Phe
130						135					140				
Asn	Cys	Ser	Leu	Cys	Leu	Asn	Gly	Thr	Val	His	Leu	Ser	Cys	Gln	Glu
145					150					155					160
Lys	Gln	Asn	Thr	Val	Cys	Thr	Cys	His	Ala	Gly	Phe	Phe	Leu	Arg	Glu
				165					170					175	
Asn	Glu	Cys	Val	Ser	Cys	Ser	Asn	Cys	Lys	Lys	Ser	Leu	Glu	Cys	Thr
			180					185					190		
Lys	Leu	Cys	Leu	Pro	Gln	Ile	Glu	Asn	Val	Lys	Gly	Thr	Glu	Asp	Ser
		195					200					205			
Gly	Thr	Thr	Val	Leu	Leu	Pro	Leu	Val	Ile	Phe	Phe	Gly	Leu	Cys	Leu
	210					215						220			
Leu	Ser	Leu	Leu	Phe	Ile	Gly	Leu	Met	Tyr	Arg	Tyr	Gln	Arg	Trp	Lys
225					230					235					240
Ser	Lys	Leu	Tyr	Ser	Ile	Val	Cys	Gly	Lys	Ser	Thr	Pro	Glu	Lys	Glu
				245					250					255	
Gly	Glu	Leu	Glu	Gly	Thr	Thr	Thr	Lys	Pro	Leu	Ala	Pro	Asn	Pro	Ser
			260					265					270		
Phe	Ser	Pro	Thr	Pro	Gly	Phe	Thr	Pro	Thr	Leu	Gly	Phe	Ser	Pro	Val
		275					280					285			
Pro	Ser	Ser	Thr	Phe	Thr	Ser	Ser	Ser	Thr	Tyr	Thr	Pro	Gly	Asp	Cys
	290					295					300				
Pro	Asn	Phe	Ala	Ala	Pro	Arg	Arg	Glu	Val	Ala	Pro	Pro	Tyr	Gln	Gly
305					310					315					320
Ala	Asp	Pro	Ile	Leu	Ala	Thr	Ala	Leu	Ala	Ser	Asp	Pro	Ile	Pro	Asn
				325					330					335	
Pro	Leu	Gln	Lys	Trp	Glu	Asp	Ser	Ala	His	Lys	Pro	Gln	Ser	Leu	Asp
			340					345					350		
Thr	Asp	Asp	Pro	Ala	Thr	Leu	Tyr	Ala	Val	Val	Glu	Asn	Val	Pro	Pro
	355						360					365			
Leu	Arg	Trp	Lys	Glu	Phe	Val	Arg	Arg	Leu	Gly	Leu	Ser	Asp	His	Glu
	370					375					380				
Ile	Asp	Arg	Leu	Glu	Leu	Gln	Asn	Gly	Arg	Cys	Leu	Arg	Glu	Ala	Gln
385					390					395					400
Tyr	Ser	Met	Leu	Ala	Thr	Trp	Arg	Arg	Arg	Thr	Pro	Arg	Arg	Glu	Ala
				405					410					415	
Thr	Leu	Glu	Leu	Leu	Gly	Arg	Val	Leu	Arg	Asp	Met	Asp	Leu	Leu	Gly
			420					425					430		
Cys	Leu	Glu	Asp	Ile	Glu	Glu	Ala	Leu	Cys	Gly	Pro	Ala	Ala	Leu	Pro
		435					440					445			
Pro	Ala	Pro	Ser	Leu	Leu	Arg									
	450					455									

<210> 23

<211> 2154

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 23

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cctctgactt tcagcttctc gaactcgagg cccaggctgc catcgcccg ggcacctggt 180
ccgatcatct tacttcattc acgagcggtt tcaattgctg ccctgtcccc agccccaatg 240
ggggagttag aggccactgc cggccggaca tgggtctccc caccgtgcct ggctgtctgc 300
tgtcactggt gtcctggct ctgctgatgg ggatacatcc atcaggggtc actggactag 360
tcccttctct tggtgaccgg gagaagaggg atagcttgtg tccccaagga aagtatgtcc 420

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cttcccagaa ttacctcagg cagtgtctca gttgcaagac atgtcggaaa gaaatgtccc 600
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gtaaggtaag gacaagcata gaaaggcggg gtctccagct ggagccctcg actcttgtaa 2100
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<210> 24

<211> 454

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 24

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Met Gly Leu Pro Thr Val Pro Gly Leu Leu Leu Ser Leu Val Leu Leu
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Ala Leu Leu Met Gly Ile His Pro Ser Gly Val Thr Gly Leu Val Pro
 20          25          30
Ser Leu Gly Asp Arg Glu Lys Arg Asp Ser Leu Cys Pro Gln Gly Lys
 35          40          45
Tyr Val His Ser Lys Asn Asn Ser Ile Cys Cys Thr Lys Cys His Lys
 50          55          60
Gly Thr Tyr Leu Val Ser Asp Cys Pro Ser Pro Gly Arg Asp Thr Val
 65          70          75          80
Cys Arg Glu Cys Glu Lys Gly Thr Phe Thr Ala Ser Gln Asn Tyr Leu
 85          90          95
Arg Gln Cys Leu Ser Cys Lys Thr Cys Arg Lys Glu Met Ser Gln Val
100          105          110
Glu Ile Ser Pro Cys Gln Ala Asp Lys Asp Thr Val Cys Gly Cys Lys
115          120          125
Glu Asn Gln Phe Gln Arg Tyr Leu Ser Glu Thr His Phe Gln Cys Val
130          135          140
Asp Cys Ser Pro Cys Phe Asn Gly Thr Val Thr Ile Pro Cys Lys Glu
145          150          155          160

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Thr Gln Asn Thr Val Cys Asn Cys His Ala Gly Phe Phe Leu Arg Glu
 165 170 175
 Ser Glu Cys Val Pro Cys Ser His Cys Lys Lys Asn Glu Glu Cys Met
 180 185 190
 Lys Leu Cys Leu Pro Pro Pro Leu Ala Asn Val Thr Asn Pro Gln Asp
 195 200 205
 Ser Gly Thr Ala Val Leu Leu Pro Leu Val Ile Leu Leu Gly Leu Cys
 210 215 220
 Leu Leu Ser Phe Ile Phe Ile Ser Leu Met Cys Arg Tyr Pro Arg Trp
 225 230 235 240
 Arg Pro Glu Val Tyr Ser Ile Ile Cys Arg Asp Pro Val Pro Val Lys
 245 250 255
 Glu Glu Lys Ala Gly Lys Pro Leu Thr Pro Ala Pro Ser Pro Ala Phe
 260 265 270
 Ser Pro Thr Ser Gly Phe Asn Pro Thr Leu Gly Phe Ser Thr Pro Gly
 275 280 285
 Phe Ser Ser Pro Val Ser Ser Thr Pro Ile Ser Pro Ile Phe Gly Pro
 290 295 300
 Ser Asn Trp His Phe Met Pro Pro Val Ser Glu Val Val Pro Thr Gln
 305 310 315 320
 Gly Ala Asp Pro Leu Leu Tyr Glu Ser Leu Cys Ser Val Pro Ala Pro
 325 330 335
 Thr Ser Val Gln Lys Trp Glu Asp Ser Ala His Pro Gln Arg Pro Asp
 340 345 350
 Asn Ala Asp Leu Ala Ile Leu Tyr Ala Val Val Asp Gly Val Pro Pro
 355 360 365
 Ala Arg Trp Lys Glu Phe Met Arg Phe Met Gly Leu Ser Glu His Glu
 370 375 380
 Ile Glu Arg Leu Glu Met Gln Asn Gly Arg Cys Leu Arg Glu Ala Gln
 385 390 395 400
 Tyr Ser Met Leu Glu Ala Trp Arg Arg Arg Thr Pro Arg His Glu Asp
 405 410 415
 Thr Leu Glu Val Val Gly Leu Val Leu Ser Lys Met Asn Leu Ala Gly
 420 425 430
 Cys Leu Glu Asn Ile Leu Glu Ala Leu Arg Asn Pro Ala Pro Ser Ser
 435 440 445
 Thr Thr Arg Leu Pro Arg
 450

<210> 25
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

<400> 25
 acagacaaac agcccaaacc

20

<210> 26
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence:/Note =
 Synthetic Construct

<400> 26
gcctcaccca tcagttgttt 20

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 27
agatgtggat cagcaagcag 20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/Note =
Synthetic Construct

<400> 28
gcgcaagtta ggttttgtca 20